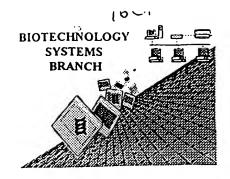
RAW SEQUENCE LISTING ERROR REPORT



1553

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

RECEIVED

Application Serial Number:

89/455, 978

NOV 1 3 2001

Source:

OIPE,

TECH CENTER 1600/2900

Date Processed by STIC:

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.
PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216. PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax) PATENTIN 3.0 e-mail help: patin3help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE <u>CHECKER VERSION 3.0 PROGRAM</u>, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:

Checker Version 3.0

The Checker Version 3.0 application is a state-of the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 – 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.

Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

Checker Version 3.0 can be down loaded from the USPTO website at the following address: http://www.uspto.gov/web/offices/pac/checker

Raw Sequence Listing Error Summary

ERROR DETECTED	SUGGESTED CORRECTION SERIAL NUMBER: 09/455, 978
ATTN: NEW RULES CASES:	PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE
	The number/text at the end of each line "wrapped" down to the next line. This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3; this will prevent "wrapping."
2Invalid Line Length	The rules require that a line not exceed 72 characters in length. This includes white spaces.
3Misaligned Amino Numbering	The numbering under each 5 th amino acid is misaligned. Do not use tab codes between numbers; use space characters, instead.
4Non-ASCII	The submitted file was not saved in ASCII(DOS) text, as required by the Sequence Rules. Please ensure your subsequent submission is saved in ASCII text.
5Variable Length	Sequence(s) contain n's or Xaa's representing more than one residue. Per Sequence Rules, each n or Xaa can only represent a single residue. Please present the maximum number of each residue having variable length and indicate in the <220>-<223> section that some may be missing.
6PatentIn 2.0 "bug"	A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid sequences(s) Normally, PatentIn would automatically generate this section from the previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section to the subsequent amino acid sequence. This applies to the mandatory <220>-<223> sections for Artificial or Unknown sequences.
7Skipped Sequences (OLD RULES)	Sequence(s) missing. If intentional, please insert the following lines for each skipped sequence: (2) INFORMATION FOR SEQ ID NO:X: (insert SEQ ID NO where "X" is shown) (i) SEQUENCE CHARACTERISTICS: (Do not insert any subheadings under this heading) (xi) SEQUENCE DESCRIPTION:SEQ ID NO:X: (insert SEQ ID NO where "X" is shown) This sequence is intentionally skipped
×-,	Please also adjust the "(ii) NUMBER OF SEQUENCES:" response to include the skipped sequences.
8Skipped Sequences (NEW RULES)	Sequence(s) missing. If intentional, please insert the following lines for each skipped sequence. <210> sequence id number <400> sequence id number 000
9 Use of n's or Xaa's (NEW RULES)	Use of n's and/or Xaa's have been detected in the Sequence Listing. Per 1.823 of Sequence Rules, use of <220>-<223> is MANDATORY if n's or Xaa's are present. In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.
10Invalid <213> Response	Per 1.823 of Sequence Rules, the only valid <213> responses are: Unknown, Artificial Sequence, or scientific name (Genus/species). <220>-<223> section is required when <213> response is Unknown or is Artificial Sequence
11Use of <220>	Sequence(s) missing the <220> "Feature" and associated numeric identifiers and responses. Use of <220> to <223> is MANDATORY if <213> "Organism" response is "Artificial Sequence" or "Unknown." Please explain source of genetic material in <220> to <223> section. (See "Federal Register," 06/01/1998, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of Sequence Rules)
Patentin 2.0 "bug"	Please do not use "Copy to Disk" function of PatentIn version 2.0. This causes a corrupted file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing). Instead, please use "File Manager" or any other manual means to copy file to floppy disk.

OIPE

RAW SEQUENCE LISTING DATE: 07/07/2001 PATENT APPLICATION: US/09/455,978 TIME: 13:15:00

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Output Set: N:\CRF3\07062001\1455978.raw

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         Larsen, Randy
 6 <120> TITLE OF INVENTION: HEME PROTEINS HEMAT-HS AND HEMAT-BS AND THEIR USE IN
         MEDICINE AND MICROSENSORS
 9 <130> FILE REFERENCE: 201040/1020
11 <140> CURRENT APPLICATION NUMBER: 09/455,978
                                                         Does Not Comply
12 <141> CURRENT FILING DATE: 1999-12-06
                                                         Corrected Diskette Needed
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                                                          sec page 5
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DATE: 07/07/2001 RAW SEQUENCE LISTING PATENT APPLICATION: US/09/455,978 TIME: 13:15:00

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Output Set: N:\CRF3\07062001\I455978.raw

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70 65		•			70					75			_	_	80
72 Leu	Phe	Ala	Asn		Thr	Lys	Thr	Val		Gln	Leu	Lys	Glu		Gln
73				85		_		_	90	~ 1	_	_	m1	95	_
75 Ala	Glu	Tyr		Leu	GLY	Leu	GLY		GLY	GIu	Tyr	Asp		GIU	Tyr
76		a 1	100	. 1 -	3	- 1 -	a1	105	т1.	ni a	7 00	17.01	110	C1.,	Ton
78 Ala	Ala		Arg	Ala	Arg	тте	120	гаг	TTE	HIS	ASP	125	ьeu	СТА	Leu
79 81 Gly	Dro	115	Val	Фит	T OU	C1 17		Птат	Фhr	λνα	ጥኒንድ		Thr	Gly	T.011
81 GIY	130	ASP	Vai	туг		135	нта	тАт	1111	AIY	140	TYL	1111	GIY	пеа
84 Leu		λla	T.011	Δla			Val	Val	Ala	Asp		Glv	Glu	Glu	Ala
85 145	кър	AIG	neu		150	изр	vui	VUI	mu	155	9	011	O.L.u	O_u	160
87 Ala	Δla	Δla	Val			Leu	Val	Ala	Ara		Leu	Pro	Met	Leu	
88	1114	11.Lu	• • • •	165	014	200			170					175	-1-
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RAW SEQUENCE LISTING DATE: 07/07/2001 PATENT APPLICATION: US/09/455,978 TIME: 13:15:00

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Output Set: N:\CRF3\07062001\1455978.raw

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RAW SEQUENCE LISTING DATE: 07/07/2001 TIME: 13:15:00 PATENT APPLICATION: US/09/455,978

Input Set : A:\H1020011.app
Output Set: N:\CRF3\07062001\1455978.raw

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198	Tyr	Val	Leu	Glu	Gĺn	Leu	Gln	Pro	Leu	Ile	Gln	Glu	Asn	Ile	Val	Asn
199	-	50					55					60				
201	Ile	Val	Asp	Ala	Phe	Tyr	Lys	Asn	Leu	Asp	His	Glu	Ser	Ser	Leu	Met
202	65					70					75					80
204	Asp	Ile	Ile	Asn	Asp	His	Ser	Ser	Val	Asp	Arg	Leu	Lys	Gln	Thr	Leu
205					85					90					95	
207	Lys	Arg	His	Ile	Gln	Glu	Met	Phe	Ala	Gly	Val	Ile	Asp	Asp	Glu	Phe
208				100					105					110		
210	Ile	Glu	Lys	Arg	Asn	Arg	Ile	Ala	Ser	Ile	His	Leu	Arg	Ile	Gly	Leu
211			115					120					125			
	Leu	Pro	Lys	Trp	Tyr	Met	Gly	Ala	Phe	Gln	Glu	Leu	Leu	Leu	Ser	Met
214		130					135					140				
		Asp	Ile	Tyr	Glu		Ser	Ile	Thr	Asn		Gln	Glu	Leu	Leu	
	145		_	_ •		150	_		_	_	155					160
	Ala	Ile	Lys	Ala		Thr	Lys	ITe	Leu		Leu	Glu	GIn	GIn		Val
220	_	a 1	- 1		165	_	~ 1	_	_	170	-1	_		-1	175	a 2
	Leu	Glu	Ата		GIn	ser	GIu	Tyr		GIn	Thr	Arg	Asp		GIn	GLu
223	~1	T	T	180	T	т	mi a	C1 -	185	т1.	C1 -	61	mh as	190	C1	C =
225	GIU	Lys	LуS 195	ASII	ьeu	Leu	HIS	200	rys	тте	GIII	GIU		ser	GIY	Ser
	Tlo	Ala		Lon	Dho	602	Clu		602	7 ~~	C07	Wa 1	205	C1.1	LOU	Val
229	TIE	210	ASII	ьеи	PHE	Ser	215	1111	SEI	AIG	ser	220	GIII	GIU	ьеи	Val
	Δen	Lys	Sar	Glu	Glv	τlΔ		Gln	λla	Sor	Luc		Clv	Thr	Va 1	Thr
	225	נענ	DCI	OIU	OLY	230	JCI	OIII	nia	DCI	235	niu	GLY	1111	vai	240
		Ser	Thr	Va 1	Glu		Lvs	Ser	Tle	Glv		Lvs	Lvs	Glu	Leu	
235					245					250	0-1	-10	-10	0_0	255	0_4
	Val	Gln	Gln	Lvs		Met	Asn	Lvs	Ile		Thr	Ser	Leu	Val		Ile
238				260				-	265.	_				270	•	
240	Glu	Lys	Glu	Met	Val	Lys	Leu	Asp	Glu	Ile	Ala	Gln	Gln	Ile	Glu	Lys
241		-	275			-		280					285			-
243	Ile	Phe	Gly	Ile	Val	Thr	Gly	Ile	Ala	Glu	Gln	Thr	Asn	Leu	Leu	Ser
244		290					295					300				
246	Leu	Asn	Ala	Ser	Ile	Glu	Ser	Ala	Arg	Ala	Gly	Glu	His	Gly	Lys	Gly
247						310					315					320
	Phe	Ala	Val	Val		Asn	Glu	Val	Arg	_	Leu	Ser	Glu	Asp		Lys
250			•		325					330					335	_
	Lys	Thr	Val		Thr	Val	Ser	Glu		Val	Asn	Asn	Thr		Thr	Gln
253		_		340	_		•		345					350	-	_
	He	Asn		Val	Ser	Lys	His		Lys	Asp	Val	Asn		Leu	Val	Ser
256	~1	_	355	- 1	_		-,	360		_	_	_	365		a 1	~ 1 -
	GIu	Ser	ьys	GIU	ьуs	мet		GIn	TTe	Asn	Arg		Pne	Asp	GIU	тте
259	77- 1	370	a	16 a. la	T	-1 -	375	T	a 1	01	a	380	- -	T 1.	3	17 n 1
		His	ser	met	гÀг		ser	ьуs	GIU	GIII		GTA	гаг	rre	ASP	
262		Leu	C1 =	ת א	Dha	390 Lou	C1	C1++	T 0	Cln	395	U = 1	C0~	λνα	λl =	400 Val
265	чsр	ьeu	GTII	HIG	405	neu	ату	стА	neu	410	GIU	val	SeT	ALG	415	AGT
	Ser	His	Va 1	Δla		Ser	Va 1	Aen	Ser		Va 1	Tla	T.011	ጥh r		Glu
268	OCT	1113	*ul	420	UT CI	JUL	, u1	p	425	20 Cu	* u 1.	11E	neu	430	JIU	JLU
				720					123					100		

on ERROR

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/455,978

DATE: 07/07/2001 TIME: 13:15:00

Input Set : A:\H1020011.app

Output Set: N:\CRF3\07062001\I455978.raw

```
274 <210> SEQ ID NO: 5
     275 <211> LENGTH: 57
     276 <212> TYPE: PRT
     277 <213> ORGANISM: Artificial Sequence
     279 <220> FEATURE:
     280 <223> OTHER INFORMATION: Description of Artificial Sequence: Template
                                      2227 must contain location of all Xaa's.
     281
               sequence
     283 <220> FEATURE:
                                           Xan's are all the same use of a range describe the location is fine. See it # $
     284 <221> NAME/KEY: UNSURE
     285 <222> LOCATION: (4)
     286 <223> OTHER INFORMATION: X at any position in this sequence is unknown.
     288 <400> SEQUENCE: 5
W--> 289 Ile Ile Lys Xaa Thr Val Pro Val Leu Xaa Glu His Gly Xaa Xaa Ile
           1 .
W--> 292 Gly Gln Asp Val Leu Val Val Leu Ile Lys Xaa Asn Pro Glu Ile Gln
W--> 295 Glu Lys Phe Phe Phe Lys His Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
     296
                  35
                                       40
W--> 298 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
              50
     302 <210> SEQ ID NO: 6
     303 <211> LENGTH: 55
     304 <212> TYPE: PRT
     305 <213> ORGANISM: Erwinia chrysanthemi
     307 <400> SEQUENCE: 6
     308 Ile Lys Ser Thr Ile Pro Leu Leu Ala Glu Thr Gly Pro Ala Leu Thr
     311 Ala His Phe Tyr Gln Arg Met Phe His His Asn Pro Glu Leu Lys Asp
                                           25
                      20
     314 Ile Phe Asn Met Ser Asn Gln Arg Asn Gly Asp Gln Arg Glu Ala Leu
     315
     317 Phe Asn Ala Ile Cys Ala Tyr
     318
              50
     321 <210> SEQ ID NO: 7
     322 <211> LENGTH: 56
    323 <212> TYPE: PRT
    324 <213> ORGANISM: Vitreoscilla stercoraria
    326 <400> SEQUENCE: 7
    327 Ile Ile Lys Ala Thr Val Pro Val Leu Lys Glu His Gly Val Thr Ile
                                               10
    330 Thr Thr Thr Phe Tyr Lys Asn Leu Phe Ala Lys His Pro Glu Val Arg
                                           25
    333 Pro Leu Phe Asp Met Gly Arg Gln Glu Ser Leu Glu Gln Pro Lys Ala
    334
    336 Leu Ala Met Thr Val Leu Ala Ala
             50
    340 <210> SEQ ID NO: 8
    341 <211> LENGTH: 55
```

Use of n and/or Xaa has been detected in the Sequence Listing. Review the Sequence Listing to insure a corresponding explanation is presented in the <220> to <223> fields of each sequence using n or Xaa.

342 <212> TYPE: PRT

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/455,978

DATE: 07/07/2001 TIME: 13:15:01

Input Set : A:\H1020011.app

Output Set: N:\CRF3\07062001\1455978.raw

```
L:289 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5
L:292 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5
L:295 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5
L:298 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5
L:752 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30
L:755 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30
L:934 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:41
L:952 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42
L:1061 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50
L:1700 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:82
L:1703 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:82
L:1722 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:83
L:1744 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:83
L:1755 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:85
L:1785 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:85
```